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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/536,619

08/25/2006

Richard Charles Elliot Cornwell

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04/09/2008

JOHN E. HART
617 EASTVIEW RD.
LARGO, FL 34640

EXAMINER

MCCALL, ERIC SCOTT

ART UNIT

PAPER NUMBER

2855

MAIL DATE

DELIVERY MODE

04/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/536,619 | Applicant(s) CORNWELL ET AL. | |
| | Examiner Eric S. McCall | Art Unit 2855 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2008.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-54 is/are pending in the application.
- 4a) Of the above claim(s) 30-42, 49-51 and 54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-48, 52 and 53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>May 26, 2005</u> | 6) <input type="checkbox"/> Other: _____ |

IMPROVED ENGINE MANAGEMENT

FIRST OFFICE ACTION ON THE MERITS

TITLE

The title of the invention is objected to because it is not descriptive of the claimed invention. A new title is required that is clearly indicative of the invention to which the claims are directed.

DRAWINGS

Figure 1 is objected to because Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Figures 1 and 7 are objected to because the individual blocks of the block diagrams thereof are not labeled.

Figure 8 is objected to as failing to comply with 37 CFR 1.84(p)(5) because Figure 8 includes the reference character "186" which is not mentioned in the description.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the Examiner, the Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

SPECIFICATION

The specification is objected to because the specification fails to set forth the proper section headings as set forth in 37 CFR 1.77(b).

ELECTION

The Applicant's traversal of the election of Group II, claims 43-48, 52, and 53, has been considered but has not been found to be persuasive.

The Applicant argues that Group III, claims 49-51, should not be separated from Group II because both groups require the deriving of the top dead center position during a cylinder cycle.

Art Unit: 2855

The Examiner points out that claim 43 does not require obtaining the indicated mean effective pressure of a cylinder, obtaining and correcting cylinder volumes, and integrating cylinder pressure against cylinder volume. All of which are required by claim 49. Furthermore, claim 49 does not require the use of a cylinder pressure variation function as set forth in claim 43.

As such, the traversal has not been found to be persuasive and the requirement is still deemed proper and is therefore made FINAL.

CLAIMS

Objections

Claim 44 is objected to because the word "is" in line 3 should be deleted.

Claim 47 is objected to because the phrase "the mechanical top dead centre" lacks antecedent basis.

35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 43-48, 52, and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by the Applicant's admitted prior art of Tomisawa (5,611,311).

With respect to claim 43, Tomisawa sets forth a method of deriving engine cylinder top dead center position comprising:

measuring cylinder pressure during a cylinder cycle (202),
constructing a pressure variation function (col. 1, lines 56-60 and col. 8, lines 33-39), and
deriving top dead center position therefrom (206).

With respect to claim 44, the devised top dead center position of Tomisawa is interpreted as a thermodynamic top dead center position as claimed because the position is derived at a maximum pressure point of the motoring pressure curve (col. 8, lines 33-39).

With respect to claim 45, Tomisawa is interpreted as suggesting the motoring pressure is derived by skip firing an engine cylinder (col. 2, lines 23-24).

With respect to claim 46, Tomisawa is interpreted as interpolating the maximum pressure from the motoring pressure curve (col. 8, lines 33-39).

With respect to claims 47 and 48, Tomisawa suggests that a mechanical top dead center is obtained by applying an offset to the thermodynamic top dead center (col. 2, lines 4-11).

With respect to claims 52 and 53, Tomisawa suggests controlling the timing of a combustion event in an engine cylinder by obtaining a combustion timing control value as a function of the derived top dead center position (col. 1, lines 5-8).

CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric S. McCall whose telephone number is (571) 272-2183.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Eric S. McCall/
Primary Examiner
Art Unit 2855

LIST OF PRIOR ART CITED BY APPLICANT

(Filed on MAY 26, 2005)

Docket No. **KILBU P-78 / 500728.**Applicant(s): **Richard Charles Elliot CORNWELL, et al.**

Application No. 10 / 536 , 619 (Int'l Appln No. PCT/GB2003/004522 20OCT03) Group: 2855

Filed: 8/25/2006

Examiner: McCall

U.S. PATENT DOCUMENTS

| Exam. Init | | Document Number | Date | Name | Class | Sub-Class | Filing Date Appropriate |
|------------|-----------|------------------|-------------------|-------------------------|-------|-----------|-------------------------|
| /E.M./ | AA | 4,455,980 | 06/26/1984 | Sasayama, et al. | _____ | _____ | |
| /E.M./ | AB | 4,531,499 | 07/30/1985 | Eckert, et al. | _____ | _____ | |
| /E.M./ | AC | 4,562,728 | 01/07/1986 | Timmerman | _____ | _____ | |
| /E.M./ | AD | 4,744,243 | 05/17/1988 | Tanaka | _____ | _____ | |
| /E.M./ | AE | 5,611,311 | 03/18/1997 | Tomisawa | _____ | _____ | |
| /E.M./ | AF | 6,148,795 | 11/21/2000 | Gerhardt, et al | _____ | _____ | |
| /E.M./ | AG | 6,230,683 | 05/15/2001 | zur Loye, et al. | _____ | _____ | |
| | AH | | | | | | |
| | AI | | | | | | |
| | AJ | | | | | | |
| | AK | | | | | | |

FOREIGN PATENT DOCUMENTS

| | | Document Number | Date | Country | CLASS | Sub-Class | Translation YES | NO |
|--------|-----------|-------------------------------------|-------------------|----------------------|-------|-----------|-----------------|----|
| /E.M./ | AL | 0 686 761 | 12/13/1995 | European | _____ | _____ | | |
| /E.M./ | AM | 0 199 431 | 10/29/1986 | European | _____ | _____ | | |
| /E.M./ | AN | 0 904 972 | 03/31/1999 | European | _____ | _____ | | |
| /E.M./ | AO | 2 331 154 | 05/12/1999 | Great Britain | _____ | _____ | | |
| /E.M./ | AP | 100 34 390 | 05/23/2002 | Germany | _____ | _____ | US 6,732,589 | |
| /E.M./ | AQ | WO 02/00494 095191 | 11/28/2002 | WIPO | _____ | _____ | | |
| | AR | | | | | | | |
| | AS | | | | | | | |
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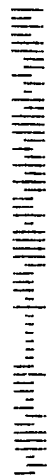
OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

| | | | |
|--|-----------|---|--|
| | AX | Macmillan, 1992, Second Edition, pages 476-477, Introduction to Internal Combustion Engines, Richard Stone | A copy of this document has not been received |
| | AY | | |
| | AZ | | |

Examiner: /Eric McCall/

Date: 04/04/2008

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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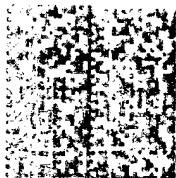
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